

Review:

#2: $(1, -1); (-2, 3)$

a) distance:
$$\begin{aligned} d &= \sqrt{(3-(-1))^2 + (-2-1)^2} \\ &= \sqrt{4^2 + (-3)^2} \\ &= \sqrt{16+9} \\ &= \sqrt{25} = \boxed{5} \end{aligned}$$

b) the midpoint

$$\left(\frac{1+(-2)}{2}, \frac{-1+3}{2} \right) \rightarrow \left(\frac{-1}{2}, \frac{2}{2} \right) \rightarrow \boxed{\left(-\frac{1}{2}, 1 \right)}$$

c) the slope: $m = \frac{3-(-1)}{-2-1} = \frac{3+1}{-3} = \boxed{-\frac{4}{3}}$

d) the slope is negative, therefore the line is going through the quadrants II and IV (downwards left to right)

#5 x-intercepts: $(-4, 0), (0, 0), (2, 0)$

y-intercepts: $(0, 2), (0, 0), \text{ and } (0, -2)$

#8 x-intercept $\Rightarrow y = 0$.

$$0 = x^2 - 9$$

$$(x^2 - 3)(x + 3) = 0$$

$$x = 3 \text{ or } x = -3 \Rightarrow$$

$$\boxed{(3, 0), (-3, 0)}$$

y-intercept $\Rightarrow x = 0$.

$$y = 0^2 - 9 = -9$$

$$\boxed{(0, -9)}$$

